Attorney Docket: 503023-B-01-US (Krishnakumar)

## **1.** A method comprising:

acquiring signal strength measurements for a signal that is received at a plurality of receivers, wherein said plurality of receivers is distributed across a plurality of zones; and estimating which zone of said plurality of zones said signal was transmitted from based on:

- (i) which zone of said plurality of zones contains a majority of the receivers that correspond to the m strongest of said signal-strength measurements; and
- (ii) whether or not said zone determined in (i) contains a majority of the receivers that correspond to the m strongest of said signal-strength measurements after increasing the value of the m+1st strongest of said signal strength measurements;

wherein m is a positive integer.

- **2.** The method of claim 1 further comprising selecting the smallest possible value for m.
- **3.** The method of claim 1 wherein said plurality of zones corresponds to the floors of a building and said candidate zone corresponds to a particular floor of said building.
- **4.** The method of claim 1 wherein the value of the m+1st strongest of said signal strength measurements is increased by an amount between 4 and 6 dB, inclusive.
- **5.** The method of claim 1 wherein the value of the m+1st strongest of said signal strength measurements is increased by an amount that is dependent on the value of m.
  - **6.** An apparatus comprising:

a network interface for acquiring signal strength measurements for a signal that is received at a plurality of receivers, wherein said plurality of receivers is distributed across a plurality of zones; and

a processor for estimating which zone of said plurality of zones said signal was transmitted from based on:

- (i) which zone of said plurality of zones contains a majority of the receivers that correspond to the m strongest of said signal-strength measurements; and
- (ii) whether or not said zone determined in (i) contains a majority of the receivers that correspond to the *m* strongest of said signal-strength

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measurements after increasing the value of the m+1st strongest of said signal strength measurements;

wherein m is a positive integer.

- **7.** The apparatus of claim 6 further comprising said plurality of receivers for making said signal strength measurements.
- **8.** The apparatus of claim 6 wherein said processor is also for selecting the smallest possible value for m.
- **9.** The apparatus of claim 6 wherein said plurality of zones corresponds to the floors of a building and said candidate zone corresponds to a particular floor of said building.
- **10.** The apparatus of claim 6 wherein the value of the m+1st strongest of said signal strength measurements is increased by an amount between 4 and 6 dB, inclusive.
- **11.** The apparatus of claim 6 wherein the value of the m+1st strongest of said signal strength measurements is increased by an amount that is dependent on the value of m.

## **12.** A method comprising:

making signal strength measurements at a plurality of receivers across a plurality of zones, wherein said signal strength measurements correspond to a signal transmitted from a wireless terminal;

finding a minimum value for m, wherein m is a positive integer, such that:

- (i) the majority of receivers that correspond to the m strongest-ranked signals
  of said signal strength measurements are located in a candidate zone
  within said plurality of zones; and
- (ii) the majority of receivers that correspond to the m strongest-ranked signals after adding a value K to the m+1st strongest of said signal strength measurements are located in said candidate zone; and

identifying said wireless terminal as being in said candidate zone.

- **13.** The method of claim 12 wherein said plurality of zones corresponds to the floors of a building and said candidate zone corresponds to a particular floor of said building.
  - **14.** The method of claim 12 wherein said value *K* is between 4 and 6 dB, inclusive.
  - **15.** The method of claim 12 wherein said value K is dependent on the value of m.

## **16.** An apparatus comprising:

a plurality of receivers for making signal strength measurements across a plurality of zones, wherein said signal strength measurements correspond to a signal transmitted from a wireless terminal; and

## a processor for:

- (i) finding a minimum value for m, wherein m is a positive integer, such that:
  - (a) the majority of receivers that correspond to the *m* strongest-ranked signals of said signal strength measurements are located in a candidate zone within said plurality of zones; and
  - (b) the majority of receivers that correspond to the m strongest-ranked signals after adding a value K to the m+1st strongest of said signal strength measurements are located in said candidate zone; and
- (ii) identifying said wireless terminal as being in said candidate zone.
- **17.** The apparatus of claim 16 wherein said processor is also for determining the location within said candidate zone of said wireless terminal.
- **18.** The apparatus of claim 16 wherein said plurality of zones corresponds to the floors of a building and said candidate zone corresponds to a particular floor of said building.
- **19.** The apparatus of claim 16 wherein said value *K* is between 4 and 6 dB, inclusive.
  - **20.** The apparatus of claim 16 wherein said value K is dependent on the value of m.
  - **21.** A method comprising:

acquiring signal strength measurements for at least one signal, wherein the signal paths that correspond to said at least one signal traverse a plurality of zones; and estimating at which zone of said plurality of zones a wireless terminal is present based on:

- (i) which zone of said plurality of zones contains a majority of signal devices that correspond to the m strongest of said signal-strength measurements; and
- (ii) whether or not said zone determined in (i) contains a majority of signal devices that correspond to the m strongest of said signal-strength measurements after increasing the value of the m+1st strongest of said signal strength measurements;

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wherein m is a positive integer; and wherein said signal devices are distributed across said plurality of zones.

- **22.** The method of claim 21 further comprising selecting the smallest possible value for m.
- **23.** The method of claim 21 wherein said plurality of zones corresponds to the floors of a building and said candidate zone corresponds to a particular floor of said building.